

International Symposium on

“Artificial Cell Reactor Science and Technology”

5 - 6 April 2018,
at The University of Tokyo

Organizer: Hiroyuki Noji, Professor of The University of Tokyo
Program Manager of ImPACT 'Artificial cell reactor technology' program,
Japan Science and Technology Agency

- Invited speakers -

Pier Luigi Luisi, ETH Zurich

Andreas Plückthun, University of Zurich

Roland Ludwig, Institute of Food Technology,
University of Natural Resources and Life Sciences

Jeff Errington,

Director of the Center for Bacterial Cell Biology, Newcastle University

Michael Jewett, Northwestern University

John Glass, J. Craig Venter Institute

Akihiko Kondo, Kobe University

Mitsuhiro Itaya, Keio University

- Date: 5th (Thu) – 6th (Fri) April, 2018
- Language: English (no simultaneous interpretation)
- Venue: Ito International Research Center, The University of Tokyo
(<http://www.u-tokyo.ac.jp/ext01/iirc/access.html>)
- Chairperson: Professor Hiroyuki Noji, ImPACT Program Manager
- Registration Fee: Free (except for banquet)
- Banquet: non-student ¥ 7,000, student ¥ 4,000
- Registration (Japanese): <http://www.jst.go.jp/impact/sympo/noji/index-j.html>
- Registration (English): <http://www.jst.go.jp/impact/sympo/noji/index-e.html>
- ImPACT Noji Program HP: <http://www.jst.go.jp/impact/noji/>
- Contact : impact-nj@jst.go.jp

Day 1 (Thu, 5th April)

- 10:00-10:10 **Opening remarks** **Hiroyuki Noji** (JST, Japan)
- Artificial cell reactor array technology**
< Chaired by Hiroyuki Noji & Kentaro Miyazaki >
- 10:10-10:40 **Hiroyuki Noji** (University of Tokyo, Japan)
Artificial cell reactor array technology for directed evolution
- 10:40-11:00 **Nobuyasu Koga** (Institute for Molecular Science, Japan)
De novo protein design and application to design thermostable proteins
- 11:00-11:30 **Yasuteru Urano** (University of Tokyo, Japan)
A library-based approach to realize intraoperative rapid imaging of tiny tumors by novel fluorogenic probes for aminopeptidases
- 11:30-11:50 **Nobuhiko Tokuriki** (University of British Columbia, Canada)
Comprehensive characterization of enzyme superfamilies toward discovery and engineering of new enzymes
- 11:50-13:20 **Lunch**
- Membrane protein (GPCR)**
<Chaired by Takeshi Murata & Tomoaki Matsuura >
- 13:20-14:10 **[Keynote] Andreas Plückthun** (University of Zurich, Switzerland)
Evolving GPCRs to favorable biophysical properties: Enabling structural and functional studies
- 14:10-14:30 **Takeshi Murata** (Chiba University, Japan)
Disruptive technology to create thermostabilized mutants of G-protein coupled receptors
- 14:30-14:50 **Tomoaki Matsuura** (Osaka University, Japan)
Evolutionary engineering and characterization of membrane proteins using liposome display
- 14:50-15:50 **(Poster session <Odd board numbers> / Coffee break)**
- Biomass**
< Chaired by Kiyohiko Igarashi & Hiroyuki Noji >
- 15:50-16:20 **Kiyohiko Igarashi** (University of Tokyo, Japan)
Enzymes degrading cellulose: From molecular mechanisms to traffic simulator
- 16:20-17:00 **Roland Ludwig** (University of Natural Resources and Life Sciences, Austria)
Interaction of oxidoreductases during biomass deconstruction
- 17:00-17:50 **[Keynote] Akihiko Kondo** (Kobe University, Japan)
Development of microbial cell factories for consolidated bioprocessing by synthetic bioengineering platform
- 17:50-20:00 **Banquet**

Day 2 (Fri, 6th April)

- Synthetic biology**
< Chaired by Masayuki Suetsugu & Kazuhito Tabata >
- 9:30-10:20 **[Keynote] Jeff Errington** (Newcastle University, UK)
L-form bacteria as a model for proliferation of primitive cells and artificial bioreactors
- 10:20-10:50 **Masayuki Suetsugu** (Rikkyo University, Japan)
Cell-free tool towards de novo genome synthesis
- 10:50-11:40 **[Keynote] John Glass** (J. Craig Venter Institute, USA)
Design, construction, and analysis of a synthetic minimal bacterial cell
- 11:40-13:10 **Lunch**
- Artificial cell (1)**
< Chaired by Norikazu Ichihashi & Daisuke Kiga >
- 13:10-14:00 **[Keynote] Mitsuhiro Itaya** (Keio University, Japan)
Manipulation of bacterial genomes by BGM vector: From synthesis to activate
- 14:00-14:40 **Michael Jewett** (Northwestern University, USA)
Life-rebuilt in cell-free systems
- 14:40-15:00 **Norikazu Ichihashi** (Osaka University, Japan)
Direct evolution of ribosome using artificial cell and sorting technologies
- 15:00-16:00 **(Poster session <Even board numbers> / Coffee break)**
- Artificial cell (2)**
< Chaired by Yutestu Kuruma & Kazuhito Tabata >
- 16:00-16:50 **[Keynote] Pier Luigi Luisi** (ETH Zürich, Switzerland)
Origin of metabolism from the spontaneous overcrowding of biopolymers in liposomes
- 16:50-17:10 **Kazuhito Tabata** (University of Tokyo, Japan)
Toward reproduction of a bacterium from hybrid cell
- 17:10-17:30 **Hiroaki Suzuki** (Chuo University, Japan)
Unique deformation modes and material encapsulation of giant unilamellar vesicles encapsulating biomacromolecules
- 17:30-18:00 **Shoji Takeuchi** (University of Tokyo, Japan)
Microfluidic formation of artificial cell membrane
- 18:00-18:10 **Closing remarks** **Hiroyuki Noji** (JST, Japan)

※ Please note that the above program might be changed